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09/769,119	01/25/2001	Richard Vandervoort Cox	2000-0031	5567

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2655	

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/769,119	COX ET AL.	
	Examiner	Art Unit	
	Brian L Albertalli	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendments to the claims and specification received on September 22, 2004 have been entered. Claims 1-12 have been cancelled, claim 13 has been amended, and new claims 20-38 have been added.

Response to Arguments

2. Applicant's arguments filed September 22, 2004 have been fully considered but they are not persuasive.

3. Firstly, the Applicant asserts that there is no motivation to modify Kotzin et al. because Kotzin et al. already teach a method of compression that differs form the Alleyne et al. approach (page 10, lines 12-14). The Applicant then argues that Kotzin et al. disclose a time compression technique that requires a speech presence detector (SPD) to remove silent portions of the speech (page 10, line 20 to page 11, line 1) and that "there is no suggestion or language such as 'other compression techniques may be used' or that the SPD approach is one of many acceptable compression approaches" (page 11, lines 6-8). The Applicant further argues "Kotzin et al. require the SPD approach" (emphasis added) and select a citation from Kotzin et al. (column 3, lines 63-64) to support the statement that any suggestion to modify Kotzin et al. is "limited to SPD's" (page 11, lines 8-15).

As stated in the previous Office Action in regard to claim 13, Kotzin et al. disclose not only the SPD approach for time scale compression, but disclose that "Alternative,

and more effective techniques for compressing the time scale of speech are well known" (emphasis added, column 6, lines 1-2) and that the techniques "can be beneficially employed to effect the instant invention as an alternative to the silence removal technique described above" (emphasis added, the "silence removal technique" corresponding to the SPD approach above, column 6, lines 13-17). Therefore, it cannot be reasonably argued Kotzin et al. require the SPD approach or that Kotzin et al. contains no suggestion that other compression techniques can be used. Furthermore, Kotzin et al. disclose these techniques provide features such as *increasing the speed of speech without distortion or altering the pitch* (column 6, lines 12-14) and *controlling the speech rate transition from compressed to normal* (column 6, lines 17-19), which are not present in the SPD approach. Therefore, it also cannot be reasonably argued that any suggestion to modify Kotzin et al. is limited to SPD's.

One of ordinary skill in the art at the time of invention would be motivated to search for alternative, more effective time scale compression techniques, outside of an SPD context, such as those disclosed in Alleyne et al., and it would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. to use the time scale compression technique of Alleyne et al. *as an alternative* to the SPD approach disclosed in Kotzin et al.

4. Secondly, the argument that incorporating Alleyne et al. to modify Kotzin et al. would change the principle operation of the invention (page 11, lines 20-22) is not persuasive because Kotzin et al. disclose a method for *mitigating the speech loss in a*

communication system by time scale compression. The SPD approach is one of several time scale compression techniques disclosed by Kotzin et al. Kotzin et al. anticipated that alternative, more effective time scale compression techniques could be "beneficially employed to the effect of the instant invention" (column 6, lines 1-2 and lines 13-17). Modifying Kotzin et al. by Alleyne et al., therefore, to employ an alternative time scale compression technique would not change the principle operation of the invention of *mitigating the speech loss in a communication system* (see title of Kotzin et al.).

5. Therefore, the rejections made in the previous Office Action stand.

6. Furthermore, rejections under 35 USC § 103 in view of Kotzin et al. and Alleyne et al. for new claims 20-37 are presented.

Specification

7. The amendments to the specification overcome the objections made in the previous Office Action. The objections to the specification are withdrawn.

Claim Objections

8. The amendments to the claims overcome the objections made in the previous Office Action. The previous objections to the claims are withdrawn.

9. However, the numbering of claims is not in accordance with 37 CFR 1.126 which requires when new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Thus, misnumbered claims "36" and "37" have been renumbered –37-- and –38--, respectively.

Claim Rejections - 35 USC § 103

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 13-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotzin et al. (U.S. Patent 5,555,447), in view of Alleyne et al. (U.S. Patent 5,216,744).

In regard to claim 13, Kotzin et al. disclose a communication device, including those with discontinuous transmission, that includes an access delay reducer (FIFO Fig. 8, 827). Furthermore, Kotzin et al. disclose that techniques to compress the timescale of a speech signal without distorting or altering the pitch frequency of the speech signal are well known and can be used to mitigate a delay (column 6, lines 1-32).

Kotzin et al. does not disclose that the access delay reducer removes an integer number of pitch period's worth of the input voice signal.

Alleyne et al. disclose a device for time scale modification of speech. An integer number of pitch periods are removed from the speech signal to time-compress the speech signal (column 4, lines 42-52 and column 5, lines 22-66).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification system that removed an integer number of pitch periods worth of voice signal, as disclosed by Alleyne et al., in order to provide a more effective technique of compression of the time scale so the output speech would still sound normal.

In regard to claim 14, Kotzin et al. does not disclose that the access delay reducer is configured so that a first portion is removed from a terminal section of a frame.

Alleyne et al. disclose a system in which an integer number of pitch periods are removed from the speech signal to time-compress the speech signal (column 4, lines 42-52 and column 5, lines 22-66).

Alleyne et al. does not specifically disclose that those pitch periods are removed from the terminal section of a frame.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the access delay reducer removed the pitch periods

from the terminal section of the frame so that the additional calculations necessary to remove a middle pitch period of the frame (to match the first section before the pitch period to the second section after the pitch period to eliminate clicks or pops in the output) would not have to be calculated, thereby reducing computation time and this delay.

In regard to claims 15-17, Kotzin et al. does not disclose that the access delay reducer is further configured to form an end portion of the time scaled frame comprises an overlap-add segment; that is formed from a first segment of the of the frame located immediately before the first portion, and a second segment comprising an endpoint portion of the terminal section of the frame; or that the first and second segments are multiplied by a window and added together to form the overlap-added segment.

Alleyne et al. disclose that the end portion of the time scaled frame comprises an overlap-add segment; that is formed from a first segment of the of the frame located immediately before the first portion, and a second segment comprising an endpoint portion of the terminal section of the frame; and that the first and second segments are multiplied by a window (ramp function) and added together to form the overlap-added segment (Fig. 6-A through 6-C; column 7 lines 47-67; and column 8, lines 1-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification method removed an integer number of pitch periods worth of voice signal, in which first and second segments are multiplied by a window and added

together to form an overlap-added segment, as disclosed by Alleyne et al., so that the first segment and second segment would blend smoothly together, as taught by Alleyne et al. (column 8, lines 29-35).

In regard to claim 18, Kotzin et al. disclose that the access delay reducer is configured to remove a first portion from a corresponding frame for each talkspurt (each time the push-to-talk (PTT) is pressed) of a call (column 5, lines 63-67).

In regard to claim 19, neither Kotzin et al. nor Alleyne et al. disclose that any decision is made as to whether the input speech signal is voiced or unvoiced. This would suggest to one of ordinary skill in the art at the time of invention that Kotzin et al., as modified by Alleyne et al., would attempt to detect the pitch period of the input speech signal, even if the portion was unvoiced speech. This result would then be used to remove a portion of the signal.

In regard to claims 20-22, and 34-36 Kotzin et al. disclose a method for time-scale compressing a talkspurt for transmission over a network.

The access delay for the network is established (Fig. 5 and column 3, lines 41-49);

at least one frame of voice signal is received (Fig 11, step 1109 and column 5, lines 27-29);

and the voice signal is time-compressed until the amount of voice signal removed (not docked into FIFO 827) is substantially the same as the access delay (FIFO 827 is substantially empty, column 5, lines 30-67).

Furthermore, Kotzin et al. disclose that techniques to compress the timescale of a speech signal without distorting or altering the pitch frequency of the speech signal are well known and can be used to mitigate a delay (column 6, lines 1-32).

Kotzin et al. does not disclose that the time-compression is accomplished by removing an integer number of pitch period's worth of voice signal.

Alleyne et al. disclose a method for time scale modification of speech. An integer number (pitch periods N+1 and N+2) of pitch periods are removed (combined into pitch period C) from the speech signal to time-compress the speech signal (column 4, lines 42-52 and column 5, lines 22-66).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification method that removed an integer number of pitch periods worth of voice signal, as disclosed by Alleyne et al., in order to provide a more effective technique of compression of the time scale so the output speech would still sound normal as the delay was mitigated.

In regard to claim 23, Kotzin et al. does not disclose that a new pitch period is calculated for each frame of speech signal from which a first portion is cut.

Alleyne et al. disclose that the pitch period is calculated for each portion of the speech signal from which a portion is cut (Fig. 3, step 122; Fig. 4, step 154; column 4, lines 5-9; and column 5, lines 22-33).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification method that removed an integer number of pitch periods worth of voice signal and calculated the pitch period for each portion of the speech signal from which a portion is cut, as disclosed by Alleyne et al., in order to provide a more effective technique of compression of the time scale so the output speech would still sound normal. Calculating the pitch period for every frame would ensure that the correct number of samples (corresponding to one or more pitch periods) were removed from the speech signal so the voice would still sound normal, and would be sufficiently frequent, because 20 milliseconds (the length of a frame) represents no change in the characteristics of the speech signal, as taught by Alleyne et al. (column 10, lines 13-20).

In regard to claim 24, Kotzin et al. does not specifically disclose establishing a time interval over which the access delay is to be mitigated, wherein the time interval is longer than the access delay.

However, Kotzin et al. does disclose that when using a time-compression method, such as disclosed in Alleyne et al., it is possible to control the transition from transmitting compressed speech to transmitting normal speech gradually (column 6, lines 17-24). This would suggest to one of ordinary skill in the art at the time of

invention that a time interval over which the access delay would be mitigated would be longer than the access delay.

In regard to claim 25, Kotzin et al. disclose that a value governing the rate over which the access delay is mitigated is established (column 6, lines 24-28).

In regard to claim 26, Kotzin et al. disclose that the steps of (a)-(d) of claim 1 are performed for each talkspurt (each time the push-to-talk (PTT) is pressed) of a call (column 5, lines 7-15).

In regard to claim 27, Kotzin et al. does not disclose that a first portion is removed from a terminal section of a frame.

Alleyne et al. disclose a method in which an integer number of pitch periods are removed from the speech signal to time-compress the speech signal (column 4, lines 42-52 and column 5, lines 22-66).

Alleyne et al. does not specifically disclose that those pitch periods are removed from the terminal section of a frame.

It would have been obvious to one of ordinary skill in the art at the time of invention to remove the pitch periods from the terminal section of the frame so that the additional calculations necessary to remove a middle pitch period of the frame (to match the first section before the pitch period to the second section after the pitch period to

eliminate clicks or pops in the output) would not have to be calculated, thereby reducing computation time and this delay.

In regard to claims 28-30, Kotzin et al. does not disclose that the end portion of the time scaled frame comprises an overlap-add segment; that is formed from a first segment of the of the frame located immediately before the first portion, and a second segment comprising an endpoint portion of the terminal section of the frame; or that the first and second segments are multiplied by a window and added together to form the overlap-added segment.

Alleyne et al. disclose that the end portion of the time scaled frame comprises an overlap-add segment; that is formed from a first segment of the of the frame located immediately before the first portion, and a second segment comprising an endpoint portion of the terminal section of the frame; and that the first and second segments are multiplied by a window (ramp function) and added together to form the overlap-added segment (Fig. 6-A through 6-C; column 7 lines 47-67; and column 8, lines 1-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification method removed an integer number of pitch periods worth of voice signal, in which first and second segments are multiplied by a window and added together to form an overlap-added segment, as disclosed by Alleyne et al., so that the first segment and second segment would blend smoothly together, as taught by Alleyne et al. (column 8, lines 29-35).

In regard to claim 31, neither Kotzin et al. nor Alleyne et al. disclose that any decision is made as to whether the input speech signal is voiced or unvoiced. This would suggest to one of ordinary skill in the art at the time of invention that Kotzin et al., as modified by Alleyne et al., would attempt to detect the pitch period of the input speech signal, even if the portion was unvoiced speech. This result would then be used to remove a portion of the signal.

In regard to claim 32, Kotzin et al. disclose that the access delay is a channel access delay (delay D) to the network (column 3, lines 41-49).

In regard to claim 33 and 37, Kotzin et al. disclose a voice activity detector (speech presence detector, Fig. 8, 806) that determines whether speech is present. The voice activity detector mitigates the delay by producing a time-compressed pattern (Fig. 11, step 1106, column 5, lines 26-34).

In regard to claim 38, Kotzin et al. disclose buffering a plurality of frames of received speech before compressing the speech (samples are stored in FIFO 827, column 4, lines 40-44).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L Albertalli whose telephone number is (703) 305-1817. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on (703) 305-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BLA 1/10/05

DAVID L. OMETZ
PRIMARY EXAMINER